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<110> Yaar, Liora
 Alroy, Iris
 Reiss, Yuval
 Taglicht, Daniel N.

<120> POSH POLYPEPTIDES, COMPLEXES AND RELATED
 METHODS

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<212> PRT
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Cys Pro Glu Cys Arg Thr Leu Val Gly Ser Gly Val Asp Glu Leu Pro
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Trp Lys Pro Gly Pro Gly Gly Gly Gly Gly Thr Thr Cys Thr Asn Thr
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Ser Gly Val His Gly Phe Phe Pro Thr Asn Phe Val Gln Ile Ile Lys
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Val Lys Asp Lys Glu Ala Asp Lys Asp Cys Leu Pro Phe Ala Lys Asp
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Asp Val Leu Thr Val Ile Arg Arg Val Asp Glu Asn Trp Ala Glu Gly
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<212> DNA

<213> *Drosophila melanogaster*

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<211> 838

<212> PRT

<213> *Drosophila melanogaster*

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Arg His Lys Gln Arg Arg Phe Leu Leu Pro His Ala Tyr Ala Leu Phe
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Pro	Ala	Ala	Lys	Thr	Ala	Ala	Gln	Gln	Gln	Gln	Phe	Leu	Pro	Lys	Gln
				645					650					655	
Leu	Pro	Ser	Ala	Ser	Thr	Asn	Ser	Val	Ser	Tyr	Gly	Ser	Gln	Arg	Val
			660					665					670		

Lys Gly Ser Lys Glu Arg Pro His Leu Ile Cys Ala Arg Gln Ser Leu
 675 680 685
 Asp Ala Ala Thr Phe Arg Ser Met Tyr Asn Asn Ala Ala Ser Pro Pro
 690 695 700
 Pro Pro Thr Thr Ser Val Ala Pro Ala Val Tyr Ala Gly Gly Gln Gln
 705 710 715 720
 Gln Val Ile Pro Gly Gly Gly Ala Gln Ser Gln Leu His Ala Asn Met
 725 730 735
 Ile Ile Ala Pro Ser His Arg Lys Ser His Ser Leu Asp Ala Ser His
 740 745 750
 Val Leu Ser Pro Ser Ser Asn Met Ile Thr Glu Ala Ala Ile Lys Ala
 755 760 765
 Ser Ala Thr Thr Lys Ser Pro Tyr Cys Thr Arg Glu Ser Arg Phe Arg
 770 775 780
 Cys Ile Val Pro Tyr Pro Pro Asn Ser Asp Ile Glu Leu Glu Leu His
 785 790 795 800
 Leu Gly Asp Ile Ile Tyr Val Gln Arg Lys Gln Lys Asn Gly Trp Tyr
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 Lys Gly Thr His Ala Arg Thr His Lys Thr Gly Leu Phe Pro Ala Ser
 820 825 830
 Phe Val Glu Pro Asp Cys
 835

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<220>
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<400> 12
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18

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<400> 16
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<400> 18
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<210> 19
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<220>
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<210> 20
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<220>

<223> target sequence

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21

<210> 21

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<213> Artificial Sequence

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21

<210> 22

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<212> DNA

<213> Artificial Sequence

<220>

<223> siRNA

<400> 22

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<210> 23

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> target sequence

<400> 23

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21

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<213> Artificial Sequence

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<223> siRNA

<400> 24

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<210> 25

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<223> siRNA

<400> 25

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21

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 <223> RING domain

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 Arg Asn Glu Leu Arg Cys Pro Glu Cys
 35 40

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 <211> 56
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> SH3 domain

<400> 27
 Pro Cys Ala Lys Ala Leu Tyr Asn Tyr Glu Gly Lys Glu Pro Gly Asp
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 Leu Lys Phe Ser Lys Gly Asp Ile Ile Ile Leu Arg Arg Gln Val Asp
 20 25 30
 Glu Asn Trp Tyr His Gly Glu Val Asn Gly Ile His Gly Phe Phe Pro
 35 40 45
 Thr Asn Phe Val Gln Ile Ile Lys
 50 55

<210> 28
 <211> 60
 <212> PRT
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 <223> SH3 domain

<400> 28
 Pro Gln Cys Lys Ala Leu Tyr Asp Phe Glu Val Lys Asp Lys Glu Ala
 1 5 10 15
 Asp Lys Asp Cys Leu Pro Phe Ala Lys Asp Asp Val Leu Thr Val Ile
 20 25 30
 Arg Arg Val Asp Glu Asn Trp Ala Glu Gly Met Leu Ala Asp Lys Ile
 35 40 45
 Gly Ile Phe Pro Ile Ser Tyr Val Glu Phe Asn Ser
 50 55 60

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 <211> 58
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<220>

<223> SH3 domain

<400> 29

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Ser Val Tyr Val Ala Ile Tyr Pro Tyr Thr Pro Arg Lys Glu Asp Glu
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           20           25           30
Asp Gly Trp Phe Lys Gly Thr Ser Met His Thr Ser Lys Ile Gly Val
           35           40           45
Phe Pro Gly Asn Tyr Val Ala Pro Val Thr
 50           55

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<210> 30

<211> 57

<212> PRT

<213> Artificial Sequence

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<223> SH3 domain

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Glu Arg His Arg Val Val Val Ser Tyr Pro Pro Gln Ser Glu Ala Glu
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Leu Glu Leu Lys Glu Gly Asp Ile Val Phe Val His Lys Lys Arg Glu
           20           25           30
Asp Gly Trp Phe Lys Gly Thr Leu Gln Arg Asn Gly Lys Thr Gly Leu
           35           40           45
Phe Pro Gly Ser Phe Val Glu Asn Ile
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<211> 121

<212> DNA

<213> Artificial Sequence

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<223> RING domain

<400> 31

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<211> 165

<212> DNA

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<223> SH3 domain

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aatggaatcc atggcttttt ccccaccaac tttgtgcaga ttatt                    165

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 atgcatacca gcaagatagg ggttttccct ggcaattatg tggcaccagt c 171

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 <223> SH3 domain

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<220>
 <223> target sequence

<400> 36
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<210> 37
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<220>

<221> VARIANT

<222> 2

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<400> 37

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<210> 38

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> chemically synthesized

<400> 38

Pro Phe Arg Asp Tyr

1

5

<210> 39

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> chemically synthesized

<400> 39

Arg Pro Glu Pro Thr Ala Pro

1

5

<210> 40

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> chemically synthesized

<400> 40

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<210> 41

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> chemically synthesized

<400> 41

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<210> 42
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<220>
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<400> 42
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<210> 43
 <211> 7
 <212> PRT
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<220>
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<400> 43
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<210> 44
 <211> 53
 <212> DNA
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<220>
 <223> scrambled human POSH oligonucleotide

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 <211> 61
 <212> DNA
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 <223> scrambled human POSH oligonucleotide

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 <223> oligonucleotide encoding RNAi against human POSH

<400> 46

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<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide encoding RNAi against human POSH

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<211> 29

<212> DNA

<213> Artificial Sequence

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<223> primer

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<210> 49

<211> 48

<212> DNA

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<223> primer

<400> 49

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<211> 836

<212> PRT

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		20						25					30		
Pro	Gly	Gly	Gly	Ser	Gly	Thr	Asn	Cys	Thr	Asn	Ala	Leu	Arg	Ser	Gln
		35					40					45			
Ser	Ser	Thr	Val	Ala	Asn	Cys	Ser	Ser	Lys	Asp	Leu	Gln	Ser	Ser	Gln
	50					55				60					
Gly	Gly	Gln	Gln	Pro	Arg	Val	Gln	Ser	Trp	Ser	Pro	Pro	Val	Arg	Gly
65					70				75					80	
Ile	Pro	Gln	Leu	Pro	Cys	Ala	Lys	Ala	Leu	Tyr	Asn	Tyr	Glu	Gly	Lys
			85					90					95		
Glu	Pro	Gly	Asp	Leu	Lys	Phe	Ser	Lys	Gly	Asp	Ile	Ile	Ile	Leu	Arg
			100					105					110		

Arg	Gln	Val	Asp	Glu	Asn	Trp	Tyr	His	Gly	Glu	Val	Asn	Gly	Ile	His
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	130					135					140				
Pro	Pro	Pro	Gln	Cys	Lys	Ala	Leu	Tyr	Asp	Phe	Glu	Val	Lys	Asp	Lys
145					150					155					160
Glu	Ala	Asp	Lys	Asp	Cys	Leu	Pro	Phe	Ala	Lys	Asp	Asp	Val	Leu	Thr
				165					170					175	
Val	Ile	Arg	Arg	Val	Asp	Glu	Asn	Trp	Ala	Glu	Gly	Met	Leu	Ala	Asp
			180					185					190		
Lys	Ile	Gly	Ile	Phe	Pro	Ile	Ser	Tyr	Val	Glu	Phe	Asn	Ser	Ala	Ala
	195						200					205			
Lys	Gln	Leu	Ile	Glu	Trp	Asp	Lys	Pro	Pro	Val	Pro	Gly	Val	Asp	Ala
	210					215					220				
Gly	Glu	Cys	Ser	Ser	Ala	Ala	Ala	Gln	Ser	Ser	Thr	Ala	Pro	Lys	His
225					230						235				240
Ser	Asp	Thr	Lys	Lys	Asn	Thr	Lys	Lys	Arg	His	Ser	Phe	Thr	Ser	Leu
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Thr	Met	Ala	Asn	Lys	Ser	Ser	Gln	Ala	Ser	Gln	Asn	Arg	His	Ser	Met
			260					265					270		
Glu	Ile	Ser	Pro	Pro	Val	Leu	Ile	Ser	Ser	Ser	Asn	Pro	Thr	Ala	Ala
	275						280					285			
Ala	Arg	Ile	Ser	Glu	Leu	Ser	Gly	Leu	Ser	Cys	Ser	Ala	Pro	Ser	Gln
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Val	His	Ile	Ser	Thr	Thr	Gly	Leu	Ile	Val	Thr	Pro	Pro	Pro	Ser	Ser
305					310					315					320
Pro	Val	Thr	Thr	Gly	Pro	Ser	Phe	Thr	Phe	Pro	Ser	Asp	Val	Pro	Tyr
				325					330					335	
Gln	Ala	Ala	Leu	Gly	Thr	Leu	Asn	Pro	Pro	Leu	Pro	Pro	Pro	Pro	Leu
			340					345					350		
Leu	Ala	Ala	Thr	Val	Leu	Ala	Ser	Thr	Pro	Pro	Gly	Ala	Thr	Ala	Ala
	355						360					365			
Ala	Ala	Ala	Ala	Gly	Met	Gly	Pro	Arg	Pro	Met	Ala	Gly	Ser	Thr	Asp
	370					375					380				
Gln	Ile	Ala	His	Leu	Arg	Pro	Gln	Thr	Arg	Pro	Ser	Val	Tyr	Val	Ala
385					390					395					400
Ile	Tyr	Pro	Tyr	Thr	Pro	Arg	Lys	Glu	Asp	Glu	Leu	Glu	Leu	Arg	Lys
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Gly	Glu	Met	Phe	Leu	Val	Phe	Glu	Arg	Cys	Gln	Asp	Gly	Trp	Phe	Lys
			420					425				430			
Gly	Thr	Ser	Met	His	Thr	Ser	Lys	Ile	Gly	Val	Phe	Pro	Gly	Asn	Tyr
		435					440					445			
Val	Ala	Pro	Val	Thr	Arg	Ala	Val	Thr	Asn	Ala	Ser	Gln	Ala	Lys	Val
	450					455					460				
Pro	Met	Ser	Thr	Ala	Gly	Gln	Thr	Ser	Arg	Gly	Val	Thr	Met	Val	Ser
465					470					475					480
Pro	Ser	Thr	Ala	Gly	Gly	Pro	Ala	Gln	Lys	Leu	Gln	Gly	Asn	Gly	Val
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Met	Thr	Val	Asn	Gln	Ala	Arg	Asn	Ala	Val	Arg	Thr	Val	Ala	Ala	His
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Ala Ala Ile Ser Ile Ser Arg Ala Ser Ala Pro Leu Ala Cys Ala Ala
595 600 605
Ala Ala Pro Leu Thr Ser Pro Ser Ile Thr Ser Ala Ser Leu Glu Ala
610 615 620
Glu Pro Ser Gly Arg Ile Val Thr Val Leu Pro Gly Leu Pro Thr Ser
625 630 635 640
Pro Asp Ser Ala Ser Ser Ala Cys Gly Asn Ser Ser Ala Thr Lys Pro
645 650 655
Asp Lys Asp Ser Lys Lys Glu Lys Lys Gly Leu Leu Lys Leu Leu Ser
660 665 670
Gly Ala Ser Thr Lys Arg Lys Pro Arg Val Ser Pro Pro Ala Ser Pro
675 680 685
Thr Leu Glu Val Glu Leu Gly Ser Ala Glu Leu Pro Leu Gln Gly Ala
690 695 700
Val Gly Pro Glu Leu Pro Pro Gly Gly Gly His Gly Arg Ala Gly Ser
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Cys Pro Val Asp Gly Asp Gly Pro Val Thr Thr Ala Val Ala Gly Ala
725 730 735
Ala Leu Ala Gln Asp Ala Phe His Arg Lys Ala Ser Ser Leu Asp Ser
740 745 750
Ala Val Pro Ile Ala Pro Pro Pro Arg Gln Ala Cys Ser Ser Leu Gly
755 760 765
Pro Val Leu Asn Glu Ser Arg Pro Val Val Cys Glu Arg His Arg Val
770 775 780
Val Val Ser Tyr Pro Pro Gln Ser Glu Ala Glu Leu Glu Leu Lys Glu
785 790 795 800
Gly Asp Ile Val Phe Val His Lys Lys Arg Glu Asp Gly Trp Phe Lys
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<210> 53
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<212> DNA
<213> Homo sapiens

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<400> 53

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<210> 54

<211> 1878

<212> DNA

<213> Homo sapiens

<400> 54

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<210> 55

<211> 1864

<212> DNA

<213> Homo sapiens

<400> 55

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<210> 56

<211> 1871

<212> DNA

<213> Homo sapiens

<400> 56

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aaaaaaaaa a 1871

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<210> 57

<211> 1865

<212> DNA

<213> Homo sapiens

<400> 57

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<210> 58
<211> 1884
<212> DNA
<213> Homo sapiens

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<210> 59
<211> 1860
<212> DNA
<213> Homo sapiens

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<210> 60

<211> 1884

<212> DNA

<213> Homo sapiens

<400> 60

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gacgtgaacg gtcgttgacg agattgcggg cggctgagac gccgcctgcc tggcacctag 60
gagcgcagcg gagccccgac accgcgcgcg ccgccatgga gtccgagacc gaacccgagc 120
ccgtcacgct cctggtgaag agccccaacc agcgccaccg cgacttggag ctgagtggcg 180
accgcggctg gagtgtgggc cacctcaagg cccacctgag ccgcgtctac cccgagcgtc 240
cgcgtccaga ggaccagagg ttaatttatt ctgggaagct gttgttggat caccaatgtc 300
tcagggactt gcttccaaag caggaaaaac ggcattgttt gcatctggtg tgcaatgtga 360
agagtccttc aaaaatgcca gaaatcaacg ccaagggtggc tgaatccaca gaggagcctg 420
ctggttctaa tcggggacag tatcctgagg attcctcaag tgatggttta aggcaaaggg 480
aagttcttcg gaacctttct tcccctggat gggaaaacat ctcaaggcct gaagctgccc 540
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agctttcctg gttccagcag atatatgcac gacagtacta catgcaatat ttagcagcca 660
ctgctgcac aggggctttt gttccaccac caagtgcaca agagatacct gtggtctctg 720
cacctgctcc agccccatt cacaaccagt ttccagctga aaaccagcct gccaatcaga 780
atgctgctcc tcaagtgggt gttaatcctg gagccaatca aaatttgcg atgaatgcac 840
aaggtggccc tattgtggaa gaagatgatg aaataaatcg agattggtt gattggacct 900
attcagcagc tacattttct gtttttctca gtatcctcta cttctactcc tccctgagca 960
gattcctcat ggtcatgggg gccaccgttg ttaatgtac gtatcacgtt ggggtggttc 1020
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atcaggaccc caacaataac ttacaggaag gcaactgatc tgaaactgaa gaccccaacc 1140
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cagcatggct tgtcttcaag actttctttg cctctcttct tccagaaggc ccccagcca 1260
tcgcaaaactg atggtgtttg tgctgtagct gttggaggct ttgacaggaa tggactggat 1320
cacctgactc cagctagatt gcctctcctg gacatggcaa tgatgagttt ttaaaaaaca 1380
gtgtggatga tgatatgctt ttgtgagcaa gcaaaagcag aaacgtgaag ccgtgatata 1440

```

```

aattggtgaa caaaaaaatgc ccaaggcttc tcatgtcttt attctgaaga gctttaatat 1500
atactctatg tagtttaata agcactgtac gtagaaggcc ttaggtgttg catgtctatg 1560
cttgagggaac ttttccaaat gtgtgtgtct gcatgtgtgt ttgtacatag aagtcataga 1620
tgcagaagtg gttctgctgg tacgatttga ttctgtgtgg aatgtttaaa ttacactaag 1680
tgtactactt tatataatca atgaaattgc tagacatgtt ttagcaggac ttttctagga 1740
aagacttatg tataattgct ttttaaaatg cagtgcctta ctttaaacta aggggaactt 1800
tgcggaggtg aaaacctttg ctgggttttc tgttcaataa agttttacta tgaatgaccc 1860
tgaaaaaaaa aaaaaaaaaa aaaa                                     1884

```

<210> 61
 <211> 232
 <212> PRT
 <213> Homo sapiens

```

<400> 61
Met Glu Ser Glu Thr Glu Pro Glu Pro Val Thr Leu Leu Val Lys Ser
 1          5          10          15
Pro Asn Gln Arg His Arg Asp Leu Glu Leu Ser Gly Asp Arg Gly Trp
          20          25          30
Ser Val Gly His Leu Lys Ala His Leu Ser Arg Val Tyr Pro Glu Arg
          35          40          45
Pro Arg Pro Glu Asp Gln Arg Leu Ile Tyr Ser Gly Lys Leu Leu Leu
          50          55          60
Asp His Gln Cys Leu Arg Asp Leu Leu Pro Lys Glu Lys Arg His Val
65          70          75          80
Leu His Leu Val Cys Asn Val Lys Ser Pro Ser Lys Met Pro Glu Ile
          85          90          95
Asn Ala Lys Val Ala Glu Ser Thr Glu Glu Pro Ala Gly Ser Asn Arg
          100          105          110
Gly Gln Tyr Pro Glu Asp Ser Ser Ser Asp Gly Leu Arg Gln Arg Glu
          115          120          125
Val Leu Arg Asn Leu Ser Ser Pro Gly Trp Glu Asn Ile Ser Arg His
          130          135          140
His Val Gly Trp Phe Pro Phe Arg Pro Arg Pro Val Gln Asn Phe Pro
145          150          155          160
Asn Asp Gly Pro Pro Pro Asp Val Val Asn Gln Asp Pro Asn Asn Asn
          165          170          175
Leu Gln Glu Gly Thr Asp Pro Glu Thr Glu Asp Pro Asn His Leu Pro
          180          185          190
Pro Asp Arg Asp Val Leu Asp Gly Glu Gln Thr Ser Pro Ser Phe Met
          195          200          205
Ser Thr Ala Trp Leu Val Phe Lys Thr Phe Phe Ala Ser Leu Leu Pro
          210          215          220
Glu Gly Pro Pro Ala Ile Ala Asn
225          230

```

<210> 62
 <211> 209
 <212> PRT
 <213> Homo sapiens

```

<400> 62
Met Gln Tyr Leu Ala Ala Thr Ala Ala Ser Gly Ala Phe Val Pro Pro
 1          5          10          15
Pro Ser Ala Gln Glu Ile Pro Val Val Ser Ala Pro Ala Pro Ala Pro
          20          25          30
Ile His Asn Gln Phe Pro Ala Glu Asn Gln Pro Ala Asn Gln Asn Ala
          35          40          45

```

```

Ala Pro Gln Val Val Val Asn Pro Gly Ala Asn Gln Asn Leu Arg Met
 50      55      60
Asn Ala Gln Gly Gly Pro Ile Val Glu Glu Asp Asp Glu Ile Asn Arg
65      70      75      80
Asp Trp Leu Asp Trp Thr Tyr Ser Ala Ala Thr Phe Ser Val Phe Leu
      85      90      95
Ser Ile Leu Tyr Phe Tyr Ser Ser Leu Ser Arg Phe Leu Met Val Met
      100      105      110
Gly Ala Thr Val Val Met Tyr Leu His His Val Gly Trp Phe Pro Phe
      115      120      125
Arg Pro Arg Pro Val Gln Asn Phe Pro Asn Asp Gly Pro Pro Pro Asp
      130      135      140
Val Val Asn Gln Asp Pro Asn Asn Asn Leu Gln Glu Gly Thr Asp Pro
145      150      155      160
Glu Thr Glu Asp Pro Asn His Leu Pro Pro Asp Arg Asp Val Leu Asp
      165      170      175
Gly Glu Gln Thr Ser Pro Ser Phe Met Ser Thr Ala Trp Leu Val Phe
      180      185      190
Lys Thr Phe Phe Ala Ser Leu Leu Pro Glu Gly Pro Pro Ala Ile Ala
      195      200      205
Asn

```

```

<210> 63
<211> 356
<212> PRT
<213> Homo sapiens

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```

<400> 63
Gly His Leu Lys Ala His Leu Ser Arg Val Tyr Pro Glu Arg Pro Arg
 1      5      10      15
Pro Glu Asp Gln Arg Leu Ile Tyr Ser Gly Lys Leu Leu Leu Asp His
      20      25      30
Gln Cys Leu Arg Asp Leu Leu Pro Lys Glu Lys Arg His Val Leu His
      35      40      45
Leu Val Cys Asn Val Lys Ser Pro Ser Lys Met Pro Glu Ile Asn Ala
      50      55      60
Lys Val Ala Glu Ser Thr Glu Glu Pro Ala Gly Ser Asn Arg Gly Gln
65      70      75      80
Tyr Pro Glu Asp Ser Ser Ser Asp Gly Leu Arg Gln Arg Glu Val Leu
      85      90      95
Arg Asn Leu Ser Ser Pro Gly Trp Glu Asn Ile Ser Arg Pro Glu Ala
      100      105      110
Ala Gln Gln Ala Phe Gln Gly Leu Gly Pro Gly Phe Ser Gly Tyr Thr
      115      120      125
Pro Tyr Gly Trp Leu Gln Leu Ser Trp Phe Gln Gln Ile Tyr Ala Arg
      130      135      140
Gln Tyr Tyr Met Gln Tyr Leu Ala Ala Thr Ala Ala Ser Gly Ala Phe
145      150      155      160
Val Pro Pro Pro Ser Ala Gln Glu Ile Pro Val Val Ser Ala Pro Ala
      165      170      175
Pro Ala Pro Ile His Asn Gln Phe Pro Ala Glu Asn Gln Pro Ala Asn
      180      185      190
Gln Asn Ala Ala Pro Gln Val Val Val Asn Pro Gly Ala Asn Gln Asn
      195      200      205
Leu Arg Met Asn Ala Gln Gly Gly Pro Ile Val Glu Glu Asp Asp Glu
      210      215      220

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```

Ile Asn Arg Asp Trp Leu Asp Trp Thr Tyr Ser Ala Ala Thr Phe Ser
225          230          235          240
Val Phe Leu Ser Ile Leu Tyr Phe Tyr Ser Ser Leu Ser Arg Phe Leu
          245          250          255
Met Val Met Gly Ala Thr Val Val Met Tyr Leu His His Val Gly Trp
          260          265          270
Phe Pro Phe Arg Pro Arg Pro Val Gln Asn Phe Pro Asn Asp Gly Pro
          275          280          285
Pro Pro Asp Val Val Asn Gln Asp Pro Asn Asn Asn Leu Gln Glu Gly
          290          295          300
Thr Asp Pro Glu Thr Glu Asp Pro Asn His Leu Pro Pro Asp Arg Asp
305          310          315          320
Val Leu Asp Gly Glu Gln Thr Ser Pro Ser Phe Met Ser Thr Ala Trp
          325          330          335
Leu Val Phe Lys Thr Phe Phe Ala Ser Leu Leu Pro Glu Gly Pro Pro
          340          345          350
Ala Ile Ala Asn
          355

```

```

<210> 64
<211> 391
<212> PRT
<213> Homo sapiens

```

```

<400> 64
Met Glu Ser Glu Thr Glu Pro Glu Pro Val Thr Leu Leu Val Lys Ser
1          5          10          15
Pro Asn Gln Arg His Arg Asp Leu Glu Leu Ser Gly Asp Arg Gly Trp
          20          25          30
Ser Val Gly His Leu Lys Ala His Leu Ser Arg Val Tyr Pro Glu Arg
          35          40          45
Pro Arg Pro Glu Asp Gln Arg Leu Ile Tyr Ser Gly Lys Leu Leu Leu
          50          55          60
Asp His Gln Cys Leu Arg Asp Leu Leu Pro Lys Gln Glu Lys Arg His
65          70          75          80
Val Leu His Leu Val Cys Asn Val Lys Ser Pro Ser Lys Met Pro Glu
          85          90          95
Ile Asn Ala Lys Val Ala Glu Ser Thr Glu Glu Pro Ala Gly Ser Asn
          100          105          110
Arg Gly Gln Tyr Pro Glu Asp Ser Ser Ser Asp Gly Leu Arg Gln Arg
          115          120          125
Glu Val Leu Arg Asn Leu Ser Ser Pro Gly Trp Glu Asn Ile Ser Arg
          130          135          140
Pro Glu Ala Ala Gln Gln Ala Phe Gln Gly Leu Gly Pro Gly Phe Ser
145          150          155          160
Gly Tyr Thr Pro Tyr Gly Trp Leu Gln Leu Ser Trp Phe Gln Gln Ile
          165          170          175
Tyr Ala Arg Gln Tyr Tyr Met Gln Tyr Leu Ala Ala Thr Ala Ala Ser
          180          185          190
Gly Ala Phe Val Pro Pro Pro Ser Ala Gln Glu Ile Pro Val Val Ser
          195          200          205
Ala Pro Ala Pro Ala Pro Ile His Asn Gln Phe Pro Ala Glu Asn Gln
          210          215          220
Pro Ala Asn Gln Asn Ala Ala Pro Gln Val Val Val Asn Pro Gly Ala
225          230          235          240
Asn Gln Asn Leu Arg Met Asn Ala Gln Gly Gly Pro Ile Val Glu Glu
          245          250          255

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Asp	Asp	Glu	Ile	Asn	Arg	Asp	Trp	Leu	Asp	Trp	Thr	Tyr	Ser	Ala	Ala
		260						265					270		
Thr	Phe	Ser	Val	Phe	Leu	Ser	Ile	Leu	Tyr	Phe	Tyr	Ser	Ser	Leu	Ser
		275					280					285			
Arg	Phe	Leu	Met	Val	Met	Gly	Ala	Thr	Val	Val	Met	Tyr	Leu	His	His
		290				295					300				
Val	Gly	Trp	Phe	Pro	Phe	Arg	Pro	Arg	Pro	Val	Gln	Asn	Phe	Pro	Asn
305					310					315					320
Asp	Gly	Pro	Pro	Pro	Asp	Val	Val	Asn	Gln	Asp	Pro	Asn	Asn	Asn	Leu
			325					330					335		
Gln	Glu	Gly	Thr	Asp	Pro	Glu	Thr	Glu	Asp	Pro	Asn	His	Leu	Pro	Pro
			340					345				350			
Asp	Arg	Asp	Val	Leu	Asp	Gly	Glu	Gln	Thr	Ser	Pro	Ser	Phe	Met	Ser
		355				360						365			
Thr	Ala	Trp	Leu	Val	Phe	Lys	Thr	Phe	Phe	Ala	Ser	Leu	Leu	Pro	Glu
	370				375						380				
Gly	Pro	Pro	Ala	Ile	Ala	Asn									
385					390										

<210> 65
 <211> 1857
 <212> DNA
 <213> Rat

<400> 65

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tgagcgcagt	cgagcctcca	gcgcgcgaga	catggagccc	gagccacagc	ccgagccggt	120
cacgtcgctg	gtgaagagcc	ccaatcagcg	ccaccgcgac	ttggagctga	gtggcgaccg	180
cggttgaggt	gtgagtcgcc	tcaaggccca	cctgagccga	gtctaccccg	aacgcccgcg	240
cccagaggac	cagaggttaa	tttattctgg	gaagctgctg	ttggatcacc	aatgtctcca	300
agacttgctt	ccaaagcagg	aaaagcgaca	tgttttgcac	ctcgtgtgca	atgtgaggag	360
tccctcaaaa	aagccagaag	ccagcacaaa	gggtgctgag	tccacagagc	agccggacaa	420
cactagtcag	gcacagtatc	ctggggattc	ctcaagcgat	ggcttacggg	aaaggggaag	480
ccttcggaac	cttcctccct	ctggatggga	gaacgtctct	aggcctgaag	ccgtccagca	540
gactttccaa	ggcctcgggc	ccggcttctc	tggctacacc	acctacgggt	ggctgcagct	600
ctcctgggtc	cagcagatct	atgcaagaca	gtactacatg	caatacttgg	ctgccactgc	660
tgcttcagga	gcttttggcc	ctacaccaag	tgcacaagaa	atacctgtgg	tctctacacc	720
ggctcccgcc	cctatacaca	accagtttcc	ggcagaaaac	cagccggcca	atcagaatgc	780
agccgctcaa	gcggttggtt	atcccggagc	caatcagaac	ttgcggatga	atgcacaagg	840
cggccctctg	gtggaagaag	atgatgagat	aaaccgagac	tggttggatt	ggacctactc	900
agcagcgaca	ttttccggtt	tcttcagcat	tctttacttc	tactcctccc	tgagcagatt	960
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cagacagagg	ccagttcaga	acttcccaga	tgacgggtccc	cctcaggaag	ctgccaacca	1080
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atggctagtc	ttcaagactt	tctttgcctc	tcttcttcgg	gaaggcccac	cagccctagc	1260
aaactgatgg	cccctgtgct	ctggtgctgg	aggctttcac	agcttggact	ggatcgctcc	1320
ctggcgtgga	ctcgagagag	tcattgaaaa	cccacaggat	gacgatgtgc	ttctgtgcca	1380
agcaaaagca	caaaactaaga	catgaagccg	tggtacaaac	tgaacagggc	ccctcatgtc	1440
gttattctga	agagctttta	tgtatactgt	atgtagtctc	ataggcactg	taaacagaag	1500
gccaggggtc	gcattgtctg	cctgagcacc	tccccagacg	tgtgtgcatg	tgtgccgtac	1560
atggaagtca	tagacgtgtg	tgcattgtgtg	ctctacatgg	aagtcataga	tgcagaaacg	1620
gttctgctgg	ttcgatttga	ttcctgttgg	aatgttgcaa	ttacactaag	tgtactactt	1680
tatataatca	gtgacttgct	agacatgtta	gcaggacttt	tctaggagag	acttatttga	1740
tcattgcttt	ttaaaacgca	gtgcttactt	actgaggggc	gcgacttggc	acaggtaaag	1800
cctttgccgg	gttttctgtt	caataaagtt	ttgctatgaa	cgacaaaaaa	aaaaaaa	1857

<210> 66

<211> 391
 <212> PRT
 <213> Rat

<400> 66

Met	Glu	Pro	Glu	Pro	Gln	Pro	Glu	Pro	Val	Thr	Leu	Leu	Val	Lys	Ser
1				5					10					15	
Pro	Asn	Gln	Arg	His	Arg	Asp	Leu	Glu	Leu	Ser	Gly	Asp	Arg	Gly	Trp
		20						25					30		
Ser	Val	Ser	Arg	Leu	Lys	Ala	His	Leu	Ser	Arg	Val	Tyr	Pro	Glu	Arg
	35						40					45			
Pro	Arg	Pro	Glu	Asp	Gln	Arg	Leu	Ile	Tyr	Ser	Gly	Lys	Leu	Leu	Leu
	50					55					60				
Asp	His	Gln	Cys	Leu	Gln	Asp	Leu	Leu	Pro	Lys	Gln	Glu	Lys	Arg	His
65					70					75				80	
Val	Leu	His	Leu	Val	Cys	Asn	Val	Arg	Ser	Pro	Ser	Lys	Lys	Pro	Glu
				85					90					95	
Ala	Ser	Thr	Lys	Gly	Ala	Glu	Ser	Thr	Glu	Gln	Pro	Asp	Asn	Thr	Ser
			100					105					110		
Gln	Ala	Gln	Tyr	Pro	Gly	Asp	Ser	Ser	Ser	Asp	Gly	Leu	Arg	Glu	Arg
		115					120					125			
Glu	Val	Leu	Arg	Asn	Leu	Pro	Pro	Ser	Gly	Trp	Glu	Asn	Val	Ser	Arg
	130					135					140				
Pro	Glu	Ala	Val	Gln	Gln	Thr	Phe	Gln	Gly	Leu	Gly	Pro	Gly	Phe	Ser
145					150					155					160
Gly	Tyr	Thr	Thr	Tyr	Gly	Trp	Leu	Gln	Leu	Ser	Trp	Phe	Gln	Gln	Ile
				165					170					175	
Tyr	Ala	Arg	Gln	Tyr	Tyr	Met	Gln	Tyr	Leu	Ala	Ala	Thr	Ala	Ala	Ser
			180					185					190		
Gly	Ala	Phe	Gly	Pro	Thr	Pro	Ser	Ala	Gln	Glu	Ile	Pro	Val	Val	Ser
	195						200					205			
Thr	Pro	Ala	Pro	Ala	Pro	Ile	His	Asn	Gln	Phe	Pro	Ala	Glu	Asn	Gln
	210					215					220				
Pro	Ala	Asn	Gln	Asn	Ala	Ala	Ala	Gln	Ala	Val	Val	Asn	Pro	Gly	Ala
225					230					235					240
Asn	Gln	Asn	Leu	Arg	Met	Asn	Ala	Gln	Gly	Gly	Pro	Leu	Val	Glu	Glu
			245						250					255	
Asp	Asp	Glu	Ile	Asn	Arg	Asp	Trp	Leu	Asp	Trp	Thr	Tyr	Ser	Ala	Ala
		260						265					270		
Thr	Phe	Ser	Val	Phe	Leu	Ser	Ile	Leu	Tyr	Phe	Tyr	Ser	Ser	Leu	Ser
	275						280					285			
Arg	Phe	Leu	Met	Val	Met	Gly	Ala	Thr	Val	Val	Met	Tyr	Leu	His	His
	290					295					300				
Val	Gly	Trp	Phe	Pro	Phe	Arg	Gln	Arg	Pro	Val	Gln	Asn	Phe	Pro	Asp
305					310					315					320
Asp	Gly	Pro	Pro	Gln	Glu	Ala	Ala	Asn	Gln	Asp	Pro	Asn	Asn	Asn	Leu
				325					330					335	
Gln	Gly	Gly	Leu	Asp	Pro	Glu	Met	Glu	Asp	Pro	Asn	Arg	Leu	Pro	Val
			340					345					350		
Gly	Arg	Glu	Val	Leu	Asp	Pro	Glu	His	Thr	Ser	Pro	Ser	Phe	Met	Ser
	355						360					365			
Thr	Ala	Trp	Leu	Val	Phe	Lys	Thr	Phe	Phe	Ala	Ser	Leu	Leu	Pro	Glu
	370					375					380				
Gly	Pro	Pro	Ala	Leu	Ala	Asn									
385					390										

<210> 67
 <211> 1871

<212> DNA
<213> Mouse

<400> 67

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aaagacgcca agtgtcggtt tgtggtctca gacggctgcg tcgccgcccg ttcggcatcc 60
ctgagcgcag tcgagccgcc agcgacgcag acatggagcc cgagccacag cccgagccgg 120
tcacgctgct ggtgaagagt cccaatcagc gccaccgcga cttggagctg agtggcgacc 180
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aagatttgct tccaaagcag gaaaagcgac atgttttgca ctttgtgtgc aatgtgaaga 360
atccctccaa aatgccagaa accagcacia aggggtgctga atccacagag cagccggaca 420
actctaatac gacacagcat cctggggact cctcaagtga tggtttacgg caaagagaag 480
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ccgcagcgac gttttctggt ttctcagca tcctttactt ctactcctcg ctgagcagat 960
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aggaccccaa caataacctc cagggaggta tggaccaga aatggaagac ccaaccgcc 1140
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ctgaacaggg cccctcatgt cgttattctg aagagcttta atgtatactg tatgtagttt 1500
cataggcact gtaagcagaa ggcccagggt cgcattgtct gctgagcac ctccccagat 1560
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tgaatgactg t                                     1871

```

<210> 68
<211> 391
<212> PRT
<213> Mouse

<400> 68

```

Met Glu Pro Glu Pro Gln Pro Glu Pro Val Thr Leu Leu Val Lys Ser
 1              5              10              15
Pro Asn Gln Arg His Arg Asp Leu Glu Leu Ser Gly Asp Arg Ser Trp
      20              25              30
Ser Val Ser Arg Leu Lys Ala His Leu Ser Arg Val Tyr Pro Glu Arg
      35              40              45
Pro Arg Pro Glu Asp Gln Arg Leu Ile Tyr Ser Gly Lys Leu Leu Leu
      50              55              60
Asp His Gln Cys Leu Gln Asp Leu Leu Pro Lys Gln Glu Lys Arg His
65              70              75              80
Val Leu His Leu Val Cys Asn Val Lys Asn Pro Ser Lys Met Pro Glu
      85              90              95
Thr Ser Thr Lys Gly Ala Glu Ser Thr Glu Gln Pro Asp Asn Ser Asn
      100             105             110
Gln Thr Gln His Pro Gly Asp Ser Ser Ser Asp Gly Leu Arg Gln Arg
      115             120             125

```

Glu	Val	Leu	Arg	Asn	Leu	Ser	Pro	Ser	Gly	Trp	Glu	Asn	Ile	Ser	Arg
130						135					140				
Pro	Glu	Ala	Val	Gln	Gln	Thr	Phe	Gln	Gly	Leu	Gly	Pro	Gly	Phe	Ser
145					150					155					160
Gly	Tyr	Thr	Thr	Tyr	Gly	Trp	Leu	Gln	Leu	Ser	Trp	Phe	Gln	Gln	Ile
				165					170					175	
Tyr	Ala	Arg	Gln	Tyr	Tyr	Met	Gln	Tyr	Leu	Ala	Ala	Thr	Ala	Ala	Ser
			180					185					190		
Gly	Thr	Phe	Val	Pro	Thr	Pro	Ser	Ala	Gln	Glu	Ile	Pro	Val	Val	Ser
		195					200					205			
Thr	Pro	Ala	Pro	Ala	Pro	Ile	His	Asn	Gln	Phe	Pro	Ala	Glu	Asn	Gln
	210					215					220				
Pro	Ala	Asn	Gln	Asn	Ala	Ala	Ala	Gln	Ala	Val	Val	Asn	Pro	Gly	Ala
225					230					235					240
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Asp	Gly	Gly	Pro	Arg	Asp	Ala	Ala	Asn	Gln	Asp	Pro	Asn	Asn	Asn	Leu
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Gln	Gly	Gly	Met	Asp	Pro	Glu	Met	Glu	Asp	Pro	Asn	Arg	Leu	Pro	Pro
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Asp	Arg	Glu	Val	Leu	Asp	Pro	Glu	His	Thr	Ser	Pro	Ser	Phe	Met	Ser
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Thr	Ala	Trp	Leu	Val	Phe	Lys	Thr	Phe	Phe	Ala	Ser	Leu	Leu	Pro	Glu
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